

Application. No. 10/612,262
Amendment dated October 27, 2004
Reply to Office Action of August 17, 2004

REMARKS/ARGUMENTS

Reconsideration of the above-identified application is respectfully requested in view of the foregoing amendments and the following remarks. Claims 7, 12, 19 and 23 - 26 have been cancelled without prejudice. Claims 1 - 6, 8 - 9, 15, and 21 - 22 have been amended. Claims 1 - 6, 8 - 11, 13 - 18 and 20 - 22 remain in the case..

The present invention is an energy-efficient clothes dryer that is connected to the central heating system of a house and operates as a peripheral heating zone thereof. The dryer receives heated water from the heating system and transfers by radiation, heat therefrom into a drying chamber, thus reducing cost, increasing safety and eliminating the need for gas or electricity as a source of heat for the dryer. An alternate embodiment of the inventive dryer reverses the process and uses a conventional gas or electric heating element but imparts heat to water circulated through the dryer. The heated water may then be circulated through the heating system of the house.

Claims 1 and 21 were rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 3,833,127 for DRYER FOR LAUNDRY AND OTHER OBJECTS, issued September 3, 1974 to Wolfgang Schoen et al. SCHOEN et al. teach an attachment for a domestic radiator commonly forming a part of steam and hot water space heating systems. The SCHOEN et al. radiator has a drying rack appended to and supported by a top surface of the radiator, the rack being suitable for suspending laundry or similar items therefrom. This is a completely different structure from that disclosed and now claimed by Applicants. Applicants disclose and claim a conventional clothes dryer having a rotating drum into which damp laundry may be placed for drying. Applicants' novelty lies in the heat source used to dry clothes in the rotating drum.

Dryers of the prior art have used either electrically powered heating elements or gas burners enclosed within the dryer cabinet to provide heat for the clothes drying process.

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Applicants' novel dryer utilizes a heat-exchanging radiator coupled to an external source of heated fluid to provide the drying heat. In alternate embodiments of their inventive dryer, Applicants provide a conventional heat source (i.e., electric element or gas burner) within the dryer cabinet but add a heat exchanger within the dryer whereby fluids circulated through the heat exchanger may be heated. These heated fluids may then be passed through a domestic hot water heating system or the like where the heat from the fluid may be utilized. In other words, the two embodiments of Applicants' dryer function in exactly opposite ways from one another. In a first embodiment, heat from externally heated fluid is used to dry clothes. In the second embodiment, heat generated within the dryer from a conventional heating element is used to heat fluid for use in heating a structure external to the dryer cabinet.

Claim 1 has been amended to positively recite a dryer structure having a clothes drying chamber having a motor-driven rotating drum, structure totally absent in SCHOEN et al. As amended, claim 1 clearly defines over SCHOEN et al.

Claim 21 is drawn to the second embodiment described hereinabove. Claim 21 has also been amended and, as amended, clearly defines over SCHOEN et al. which fails to teach or suggest a clothes drying system having a provision to heat fluid passing through a heat exchanger for use externally to the dryer. Consequently, as amended, claim 21 is now also believed allowable, its rejection under 35 U.S.C. §102(b) as being anticipated by SCHOEN et al. clearly having been overcome.

Claims 2 - 6 and 22 - 26 were rejected under 35 U.S.C. §103(a) as being unpatentable over SCHOEN et al. in view of United States Patent Number 4,891,892 for CLOTHES DRYER AND LAUNDRY SYSTEM, issued January 9, 1990 to Rajendra K. Narang. NARANG describes a washer and dryer system that saves energy by using the dryer exhaust and drain water from the washer to preheat water in a storage tank prior to that water being supplied to a hot water heater. Furthermore, NARANG uses hot

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air from environmental sources such as an attic or the outside of the building in which the dryer is located.

Nothing in the teaching of NARANG suggests Applicants' novel dryer wherein heat to dry clothes therein is derived from hot water supplied from an external heating appliance, typically a central boiler of a home heating system. Adding the teaching of NARANG to that of SCHOEN et al. still fails to suggest Applicants' novel structure. The NARANG primary reference, as discussed hereinabove, teaches a structure completely different from Applicants'. That fundamental fact can not be overcome by adding ANY conceivable teaching, certainly not the teaching of NARANG, thereto to suggest Applicants' structure as disclosed and now claimed.

Claims 23 - 26 have been cancelled rendering their rejection moot. Claims 2 - 6, 21, and 22 have been amended to more precisely recite the subject matter Applicants consider their invention. The amendment of claims 2 - 6, 21, and 22 clearly overcomes the rejection of those claims under 35 U.S.C. §103(a) as being unpatentable over SCHOEN et al. in view of NARANG.

Claims 9 - 11, 13 - 16, 18, and 20 were rejected under U.S.C. §103(a) as being unpatentable over United States Patent No. 3,333,345 for DOMESTIC APPLIANCE CONTROL PROBE, issued August 1, 1967 to James L. Miller in view of United States Patent No. 4,330,083 for HOME HEATING SYSTEM, issued May 18, 1982 to Dante DiFiore. MILLER teaches a conventional clothes dryer having a dryness sensor. DiFiore teaches a domestic circulating hot water heating system that includes both adjunct heat sources and heat-consuming appliances connectable thereto. DiFiore states, "typical heat consuming appliances may make use of the fireplace heating system of the present invention include home hot water heaters, clothes dryers, dishwashers, and the like." (Column 1, lines 59 - 62) DiFiore later describes "the appliance 50 can comprise a water heater or clothes dryer or dishwasher or the like when the substance or articles to be heated are positioned in a chamber indicated by the numeral 52. A water jacket 54 surrounds at least part of the chamber 52 and is configured such that, when heated

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water is supplied to the water jacket 54, heat energy from the water in jacket 54 is transferred to the chamber 52." (Column 3, lines 38 - 47)

Applicants' dryer uses a rotating drum to hold the clothes to be dried. Applicants' drum does NOT have a surrounding water jacket to transfer heat from externally-supplied hot water to the clothes contained therein. Neither, in Applicants' opinions, would it be practical to construct such a drum. Such a drum would need to rotate within a fixed water jacket thereby requiring an elaborate sealing system. The jacket might be affixed to the drum but the prospect of connecting inlet and outlet water connections to such a drum (similar perhaps to slip rings used to transfer electrical signals to a rotating structure), seems daunting. Even if a portion of the drum were to be surrounded by a water jacket, there could not be intimate contact between the exterior surface of the drum and an inner surface of the water jacket so that heat transfer therebetween would be non-optimal. Such a design probably would not yield an energy-efficient design or a dryer that dried clothes in a reasonable amount of time. Applicants' novel design utilizes a heat-exchanging radiator to heat air which is then circulated within the drum as the clothes are tumbled.

There is simply no motivation in MILLER to provide heat from an external source. Neither is there any motivation in DiFIORE to construct an appliance (i.e., a dryer) not utilizing a water jacket directly surrounding the chamber holding the clothes to be dried. Obviousness can not be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. *Carela v. Starlight Archery*, 231 U.S.P.Q. 644 (Fed. Cir. 1986) Applicants find no such teaching, suggestion or incentive in either cited reference. Nonetheless, claims 9 and 15 have been amended to positively recite the non-contiguous placement of Applicants' heat-exchanging radiator relative to the clothes drying drum. These amendments overcome the rejection of claims 9 - 11, 13 - 16, 18, and 20 under U.S.C. §103(a) as being unpatentable over MILLER in view of DiFIORE.

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Claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over MILLER in view of DiFIORE and further in view of NARANG. For at least the reasons already discussed hereinabove, claim 17 (depending from amended claim 15) is believed patentable over the combination of MILLER and DiFIORE. Consequently, adding a timer as taught by NARANG, to the subject matter of now-allowable claim 15 is merely the recitation of an additional limitation to the allowable subject matter of claim 15. Consequently, the amendment of claim 15 is believed to overcome the rejection of claim 17 under 35 U.S.C. §103(a) as being unpatentable over MILLER in view of DiFIORE and further in view of NARANG.

In view of the foregoing amendments and remarks, Applicants respectfully request that claims 1-6, 8-11, 13-18, and 20 - 22 be allowed and the application be passed to issue.

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